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## **ZERO-VOC COATINGS**

The term "zero-VOC" is commonly used in the architectural coatings industry to describe paints formulated without intentionally added volatile organic compounds (VOCs). While the term is widely recognized in product labeling and marketing, it is often misunderstood. In practice, zero-VOC does not mean that absolutely no VOCs are present in the product. Instead, it refers to coatings formulated without VOC-containing raw materials and with VOC levels below the regulatory threshold used to define the term.

Understanding what zero VOC means, and what it does not, helps architects, contractors, facility managers, and building occupants interpret product claims more accurately and set more realistic expectations for indoor air quality and odor during and after painting.

### **Absolute Zero Is Not Realistic**

From a technical standpoint, achieving absolute zero VOC content is not possible in most manufactured products, including paint. Trace levels of VOCs may still be present due to residual amounts associated with raw materials, processing aids, preservatives, or other components used in the formulation.

These trace amounts are typically extremely small and are not intentionally added as solvents or functional ingredients. However, because the components used to manufacture paints may contain minute residuals from their own production processes, detectable traces can remain in the finished product.

For this reason, the term zero-VOC in coatings generally means that no VOC-containing materials were intentionally used as components in the formulation, and that the resulting product meets the regulatory threshold used to classify it as zero-VOC.

### **Regulatory Interpretation of Zero-VOC**

In most regulatory frameworks for architectural coatings, products labeled as zero-VOC typically contain less than 5 grams per liter (g/L) of VOCs before tinting. This small allowance recognizes that trace amounts may exist even when VOC solvents are not intentionally used.

It is also important to note that tinting colorants added at the point of sale can introduce additional VOCs, depending on the type of colorant used. As a result, the final tinted paint may contain slightly higher VOC levels than the untinted base product.

### **Guidance from the Federal Trade Commission (FTC) Green Guides**

Claims such as "zero," "free of," or "VOC-free" are also addressed in the Federal Trade Commission (FTC) Green Guides, which provide guidance for environmental marketing claims in the United States.

According to the FTC Green Guides, claims that a product is "free of" a substance should not be made if the product contains more than trace amounts of that substance or if the presence of the substance results from unavoidable residual contamination.

Because trace amounts of VOCs may remain due to raw material impurities or manufacturing processes, the coatings industry generally uses the term zero-VOC within the accepted regulatory definition rather than implying an absolute absence of VOCs.

This interpretation aligns with the intent of the Green Guides by avoiding misleading claims while acknowledging that extremely small residual levels may still exist.

## **Environmental and Indoor Air Quality Benefits**

Zero-VOC paints are generally considered more environmentally responsible and better suited for indoor environments compared with traditional solvent-borne coatings used in the past. By eliminating intentionally added VOC solvents, these formulations help reduce emissions that contribute to ground-level ozone formation and indoor air contamination.

As a result, zero-VOC paints are often specified in projects seeking to improve indoor environmental quality, such as schools, healthcare facilities, offices, and residential buildings.

Many green building programs recognize coatings with very low VOC content as part of strategies to promote healthier indoor environments.

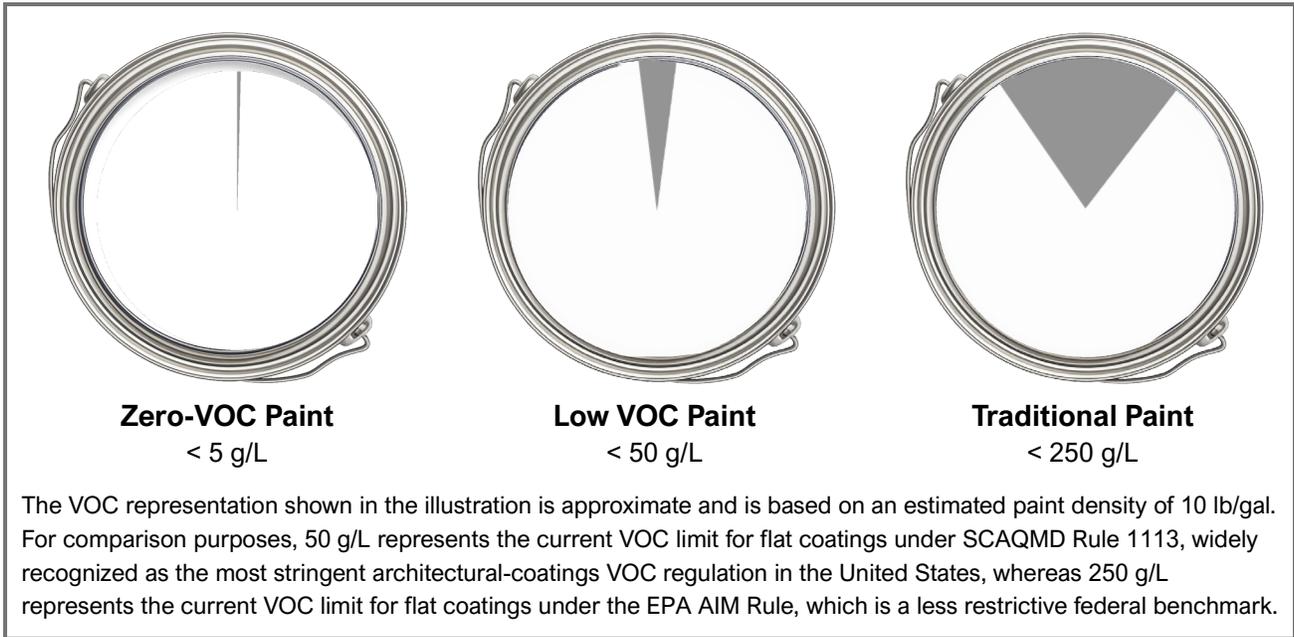
## **Common Misconceptions**

A common misconception is that zero-VOC paints translate to odor-free. In reality, odor and VOC content are not the same.

Even when VOC levels are extremely low, other paint components, such as resins, additives, and preservatives, may still produce a noticeable odor during application and drying. Although these odors are generally mild and tend to dissipate as the coating cures, they may still be noticeable to sensitive individuals.

Another common misconception is that a zero-VOC paint will always remain zero VOC after tinting. That is not necessarily the case. Some manufacturers use low-VOC colorants rather than zero-VOC colorants, which can raise the VOC content of the tinted paint. As a result, a product marketed as zero VOC in its untinted base may no longer remain zero VOC once colorant is added. In the case of Vista Paint, the colorants used for tinting are zero VOC, which allows low-VOC paints to remain low-VOC and zero-VOC paints to remain zero-VOC after tinting.

It is also often assumed that zero-VOC paints are the only coatings that can contribute toward green building credits for low-emitting materials. In reality, qualifying products are evaluated based on both VOC content and VOC emissions. As a result, low-VOC paints (< 50 g/L) may also contribute to compliance when they satisfy the applicable VOC content limits and meet VOC emissions requirements under CDPH Standard Method v1.2-2017 or another accepted pathway. This means that zero VOC is not the only route to supporting low-emitting material goals.



Although zero-VOC coatings are designed to reduce chemical emissions, exposure should still be minimized during painting operations, especially in occupied buildings. Individuals may have different sensitivities to paint components, including infants, people with asthma, and those with allergies or respiratory conditions. For this reason, it is still good practice to limit exposure to fresh paint during application and early drying periods. Maintaining adequate ventilation and air circulation during and after painting helps disperse residual vapors and supports faster dissipation of any remaining emissions. Opening windows, using fans, or operating building ventilation systems can significantly improve indoor air exchange during painting projects.

## Key Takeaways

In architectural coatings, the term zero-VOC does not imply the absolute absence of VOCs, but rather indicates that the product was formulated without intentionally added VOC-containing ingredients and meets the regulatory threshold used to define zero-VOC coatings. Trace amounts may still be present due to residual impurities from raw materials used in manufacturing. This interpretation aligns with guidance from the FTC Green Guides, which recognize that "free-of" claims must account for unavoidable trace contaminants.

Zero-VOC paints provide meaningful environmental and indoor air quality benefits compared with traditional coatings. However, they are not completely odor-free, and sensible precautions—such as maintaining proper ventilation—should still be followed during painting operations. Just as important, building professionals should recognize that not all tinted zero-VOC paints remain zero VOC after colorant is added. Using zero-VOC colorants, as Vista Paint does, helps preserve the intended low-emission benefits of the coating system after tinting. Ultimately, understanding what zero-VOC truly means allows specifiers, contractors, and occupants to evaluate product claims more accurately, make better-informed coating selections, and support healthier indoor environments without misunderstanding the limitations of the term.

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